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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,179	01/14/2005	Yugo Hasegawa	018765-202	8504
21839	7590	04/10/2006	EXAMINER	
BUCHANAN INGERSOLL PC (INCLUDING BURNS, DOANE, SWECKER & MATHIS) POST OFFICE BOX 1404 ALEXANDRIA, VA 22313-1404			CHOI, LING SIU	
			ART UNIT	PAPER NUMBER
			1713	
DATE MAILED: 04/10/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/521,179	HASEGAWA ET AL.	
	Examiner	Art Unit	
	Ling-Siu Choi	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is in response to the Amendment filed January 27, 2006. Claim 2 was canceled and claims 6-7 have been added. Claims 1 and 3-7 are now pending, wherein claims 1, 3, and 6-7 are drawn to a wear-resistant coating film; claim 4 is drawn to a (meth)acrylic copolymer resin; claim 5 is drawn to a coating solution. This Office Action is made as a second non-final rejection because the present rejections are based on a new ground.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 4 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4, line 3; **claim 7**, line 4, the recitation "(meth)acrylic acid amide" causes confusion. Does (meth)acrylic acid amide read on (meth)acrylamide?

Claim Analysis

Art Unit: 1713

4. Summary of claim 1:

A wear-resistant coating film comprising (meth)acrylic copolymer resin having	
Tg1	determined by a rigid pendulum viscoelastometer
Tg2	determined by a differential scanning calorimeter (DSC)
Tg3	calculated from a monomer composition constituting the coating film
wear resistance	determined by a Taber abrasion testing method ≥ 80 times
Tg1	110-250°C
Tg2	110-250°C
$\Delta(Tg1-Tg3)$	$\geq 30^\circ\text{C}$
$\Delta(Tg2-Tg3)$	$\geq 30^\circ\text{C}$

Summary of claim 4:

A (met)acrylic copolymer resin	
having weight average molecular weight	$\geq 20,000$
obtained by radical polymerization	(a-1) 4-50 wt% (meth)acrylic acid
	(a-2) 0.5-17 wt% (meth)acrylic acid amide
	(b) 35-95.5 wt% compound having a reactive unsaturated bond other than (a-1) and (a-2)

Claim Rejections

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office

Art Unit: 1713

action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim Rejections - 35 USC § 102

7. Claim 4 is rejected under 35 U.S.C. 102(b) as being anticipated by Miller et al. (US 3,048,501).

Miller et al. disclose a copolymer comprising **6-10 wt% of at least one acid having the formula of $\text{CH}_2=\text{C}(\text{COOH})(\text{CH}_2)_{n-1}\text{H}$ in which $n = 1-2$, 6-30 wt% of an amide of acid of the formula, and 60-84 wt% of at least lower alkyl ester of an acid of the formula** in which the alkyl group has from 1 to 4 carbon atoms, wherein the viscosity average molecular weight of the copolymer is about **100,000 or more** (col. 2, lines 33-37; claim1). Thus, the present claim is anticipated by the disclosure of Miller et al.

8. Claim 4 is rejected under 35 U.S.C. 102(b) as being anticipated by Giddings et

Art Unit: 1713

al. (US 4,770,795).

Giddings et al. disclose a copolymer comprising **acrylic acid, acrylamide, and sulfophenyl acrylamide**, wherein the copolymer has a molecular weight in the range from **1,000 to 50,000** and the acrylamide and sulfophenyl acrylamide are present in a total amount of **5-50 mole percent** (claim 1). Thus the present claim is anticipated by the disclosure of Giddings et al.

9. Claims 4-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Hiroyuki et al. (JP 10-130338).

Hiroyuki et al. disclose a copolymer comprising the contact of 920 g of methyl methacrylate, 555 g of ethyl acrylate, 125 g of 2-ethylhexyl acrylate, 125 g styrene, 250 g of 2-hydroxyethyl acrylate, 412.5 g of N-butoxymethyl **acrylamide**, and 125 g of **acrylic acid**, wherein the copolymer has weight average molecular weight of 5,000-100,000 (abstract; [0038]). Thus, the present claim is anticipated by the disclosure of Hiroyuki et al.

Claim Rejections - 35 USC § 102/103

10. Claims 1, 3, and 6-7 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Miller et al. (US 3,048,501).

Miller et al. disclose a copolymer comprising 6-10 wt% of at least one acid having the formula of $\text{CH}_2=\text{C}(\text{COOH})(\text{CH}_2)_{n-1}\text{H}$ in which $n = 1-2$, 6-30 wt% of an amide of acid

Art Unit: 1713

of the formula, and 60-84 wt% of at least lower alkyl ester of an acid of the formula in which the alkyl group has from 1 to 4 carbon atoms, wherein the viscosity average molecular weight of the copolymer is in the range of about 100,000 to about one million or more (col. 2, lines 33-37; claim 1). Miller et al. further disclose that the copolymer mixed with mineral pigments is used to coat a paper product (claim 5). However, Miller et al. are silent on the specific properties represented by the relationships among glass transition temperatures measured in different methods. In view of the substantially identical copolymer used for coating, the resulting coating film made from the copolymer would possess the claimed properties. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to applicants to show otherwise. *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977); *In re Fitzgerald*, 205 USPQ 594 (CCPA 1980).

11. Claims 1, 3, and 6-7 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hiroyuki et al. (JP 10-130338).

Hiroyuki et al. disclose a copolymer comprising the content of 920 g of methyl methacrylate, 555 g of ethyl acrylate, 125 g of 2-ethylhexyl acrylate, 125 g styrene, 250 g of 2-hydroxyethyl acrylate, 412.5 g of N-butoxymethyl **acrylamide**, and 125 g of **acrylic acid**, wherein the copolymer has weight average molecular weight of 5,000-100,000 (abstract; [0038]). Hiroyuki et al. further disclose that the copolymer is used for coating (abstract). However, Hiroyuki et al. are silent on the specific properties represented by the relationships among glass transition temperatures measured in

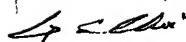
Art Unit: 1713

different methods. In view of the substantially identical copolymer used for coating, the resulting coating film made from the copolymer would possess the claimed properties. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to applicants to show otherwise. *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977); *In re Fitzgerald*, 205 USPQ 594 (CCPA 1980).

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on 571-272-1114.



LING-SUI CHOI
PRIMARY EXAMINER

April 10, 2006